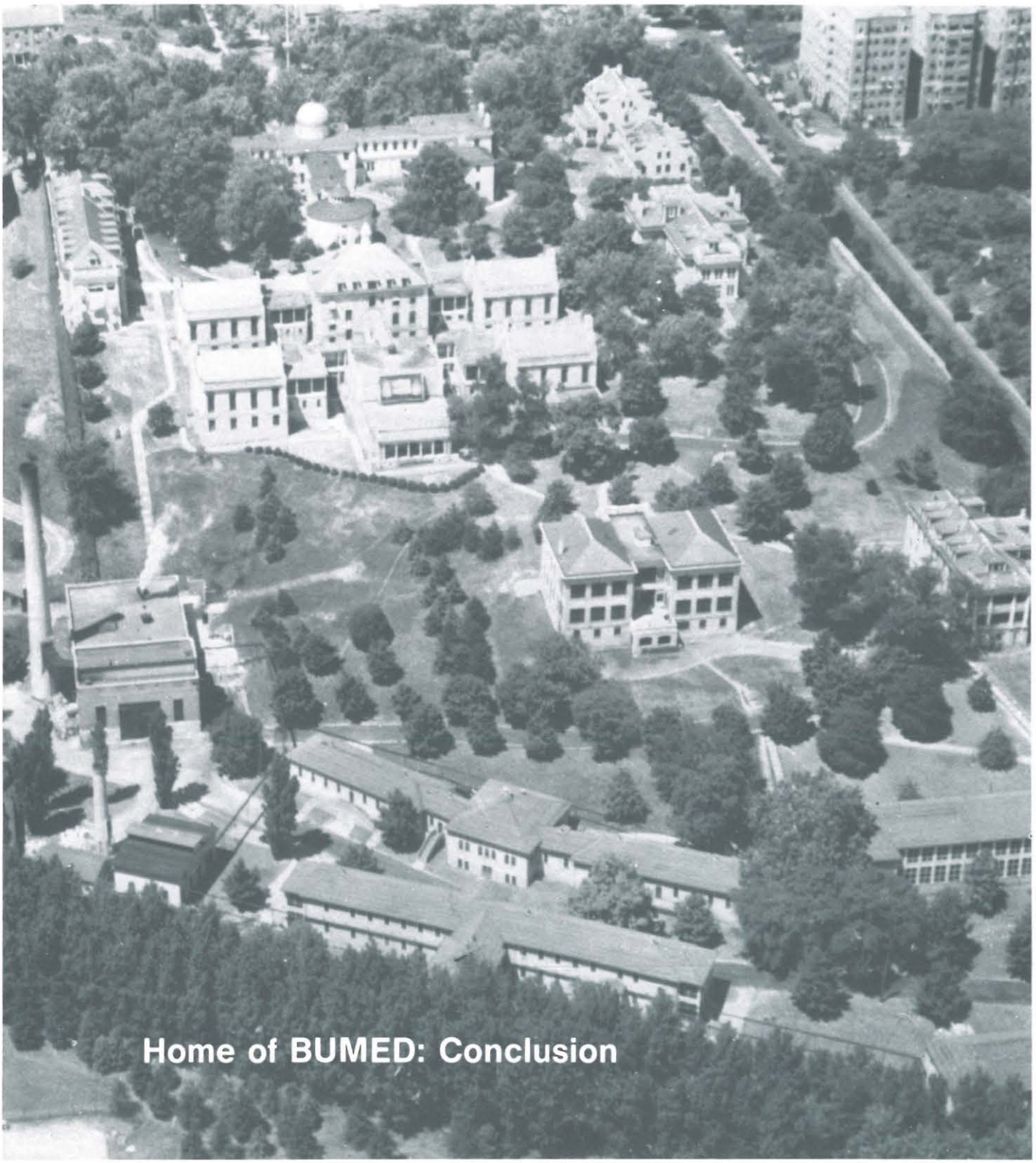
U.S. NAVY MEDICINE

March-April 1983



Home of BUMED: Conclusion

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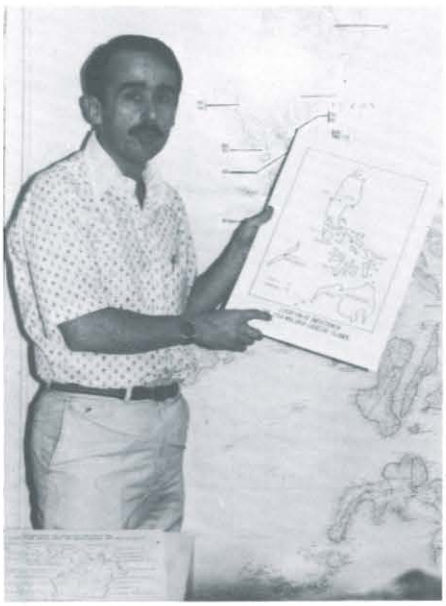
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COVER: Observatory Hill about 1937. The Naval Medical School, occupying the old Observatory, is in the center background. The Washington Naval Hospital, with its pavilion wards and slant-windowed operating room, is at the center. The wooden temporary buildings in the foreground were built during World War I. Story on page 8. Photo from the BUMED Archives.

Navy Researchers Combat Disease



LCDR Richard Buck, MC, Head of Tropical Medicine at NAMRU-2, identifies areas of malarial infestation in the Philippines.

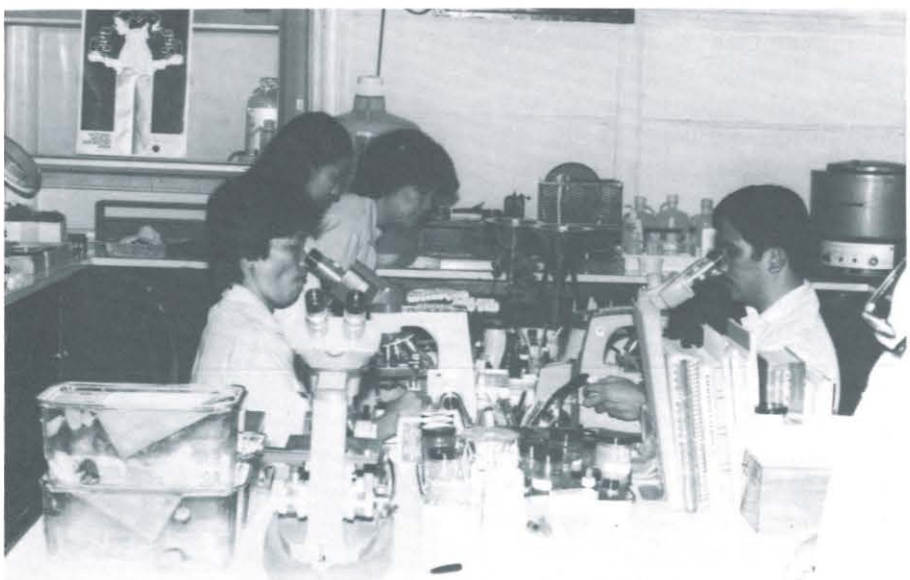
Since the beginning of World War II, the U.S. Naval Medical Research Unit No. 2 (NAMRU-2) has been responsible for studying infectious diseases of potential military significance throughout Asia. Their primary function is the control, treatment, and study of such diseases in areas where U.S. military forces might possibly be committed.

NAMRU-2 originally operated under the Rockefeller Institute in New York and Guam during World War II. Later, in 1955, it was reestablished in Taipei, Taiwan, providing assistance to other Asian countries in the study of tropical disease. The Unit has always been comprised of highly qualified American and local national physicians, scientists, and technicians, both civilian and active duty, dedicated to the prevention of tropical disease.

Dr. John H. Cross, Parasitologist and Scientific Director of NAMRU-2, first joined the Unit in 1966 when it was located in Taiwan. "We study infectious diseases in areas throughout the entire Pacific including Taiwan, Korea, Japan, Okinawa, Malaysia, and Thailand," he explained, "to discover the locations of various diseases and possibly supply a vaccine. In the beginning our studies dealt largely with cholera, but over the years we've branched out with studies in encephalitis, malaria, typhoid, dengue fever, various pneumonias, and diarrheal diseases."

NAMRU-2 has performed many investigations and biomedical surveys on various zoonotic, parasitic, bacterial, viral, and rickettsial diseases in the Philippines. In September 1961 an epidemic of cholera erupted in Manila and teams were sent to the Philippines. This began a long and continuing association with San Lazaro Hospital and the Philippine Ministry of Health. The NAMRU-2 staff and their colleagues at San Lazaro modified and improved the methods of treating cholera, and fatalities among patients dropped within 1 week from 40 percent to less than 2 percent. The physicians traveled throughout the Philippine archipelago demonstrating these new techniques which resulted in their widespread use and an overall decrease in mortality from the disease.

In 1966 the Unit was again called upon to assist in an epidemic of den-



NAMRU-2 technicians analyze specimens for signs of bacterial or parasitic infection.



Technician logs in results of bacteriology tests.



Another prepares specimens for testing.



Dr. Buck with a young patient at Manila's San Lazaro Hospital.

gue fever in the Manila area. Studies provided a clearer outlook and a better understanding of the disease. Today NAMRU-2 continues to maintain surveillance for dengue fever in Manila.

The Unit has maintained a laboratory at San Lazaro Hospital in Manila since 1968. San Lazaro is a 900-bed infectious disease hospital with a rate of some 40,000 admissions per year. This laboratory offers basic support to NAMRU-2 studies done at the hospital and also performs certain laboratory procedures not normally done by the San Lazaro staff. Throughout the early years the laboratory's studies focused on cholera and intestinal and diarrheal diseases. In later years the Unit dealt more closely with the surveillance of dengue fever, influenza, amebiasis, and the causes of encephalitis, jaundice, meningitis, and diarrhea.

Considerable effort goes into these studies which include the collection and examination of stool specimens for bacterial and parasitic infections, obtaining serum samples for detection of antibodies to various infectious diseases, and the collection of numerous vectors of disease. All this research is joined together to supply more pertinent information on epidemic disease. Scientific data and information from the studies are first supplied to health workers in the Philippines and are also published in medical or biological journals to promote wider distribution.

On 15 April 1979 the laboratories in Taipei, Taiwan, were closed and NAMRU-2 officially moved to Manila. With the assistance of San Lazaro Hospital and the Philippine Ministry of Health, laboratory spaces were made available to the Unit. Throughout the years NAMRU-2 has worked closely with Filipino scientists, physicians, nurses, and technicians. Together they have provided many significant scientific contributions to the study of infectious diseases; have proved their expertise in the areas of serology, entomology, and immunology; have developed more thorough, efficient testing procedures; and have supplied new studies and profiles on endemic disease. □

—Story and photos by HM2 Mary Drake



A specimen is prepared under a bacteriological hood.

Preventive Medicine Aboard USS *Scott*

CDR Joe L. Frank III, USN

Working closely with the Environmental and Preventive Medicine Unit No. 2, Norfolk, VA, and other supporting medical and dental commands ashore, USS *Scott* has actively pursued a myriad of programs to minimize battle impairment from disease and other health hazards. The components in this effort have been command level attention, crew participation, and the application of automatic data processing (ADP) to ease the administrative workload on Medical Department personnel.

Scott's Medical Department consists of two corpsmen and sometimes a striker. Their mission is to keep a crew of nearly 350 men healthy and battle-ready.

HMC Paul J. Raible, the ship's independent duty corpsman, participates as a department head in all policy and planning meetings. At the weekly Planning Board for Training, HMC Raible integrates the full spectrum of preventive medicine programs—in addition to the familiar first aid training—into an already busy schedule. The philosophy is that the preventive medicine effort must receive the same level of attention as the Preventive Maintenance System (PMS) for equipment and provide the same benefits of increased "up time" for the crew.

The Planning Board schedules immunization periods, physicals, dental exams, hearing tests, and pest-spraying periods. Department heads are regularly provided with lists of personnel who are due for examinations or treatment. In this way HMC Raible minimizes any perception that Medical Department activities interfere with ship events. Also, department heads and division officers share responsibility for insuring that personnel receive needed tests and treatment.

This participation by the top leadership would be vastly more difficult without the aid of ADP reports. When each new crewmember checks in on arrival, his name is entered into the administrative and medical data base of the Wang VS. Carefully screening his medical and dental records, Medical Department personnel enter the following data into the ADP file:

NAME	RATE/RANK	SSN
DEPT	DIV	EAOS
PRD	BLOOD TYPE	ALLERGIES
PHYSICAL	SMALL POX	TYPHOID
TETANUS	CHOLERA	YELLOW FEVER
POLIO	PLAGUE	FLU
PPD	CONVERTOR	CHEST X-RAY
BLOOD PRESSURE	HEIGHT	WEIGHT
AUDIOGRAM		

Utilizing sorting routines developed on board, the executive officer or corpsman can quickly print complete lists of personnel deficient in a particular preventive area, e.g., overdue for a physical or in need of a specific immunization. The minimal administrative effort spent weekly updating the file is more than offset by the ease of obtaining detailed lists for each program.

Continuing education is a big part of the preventive medicine program. Beyond the usual all-hands first aid training, 12 volunteers from the crew were selected for an intensive 2-week training session as emergency medical technicians (EMT's). This cadre of highly trained personnel augments the two-man Medical Department on duty days, during crew inoculations and examinations, at sporting events, and with special shore parties. Having no other conflicting watches during their duty day, at least one of these EMT's is always ready 24 hours a day to back up the in-port fire party, the rescue and assistance team, or to provide other required assistance to the command duty officer.

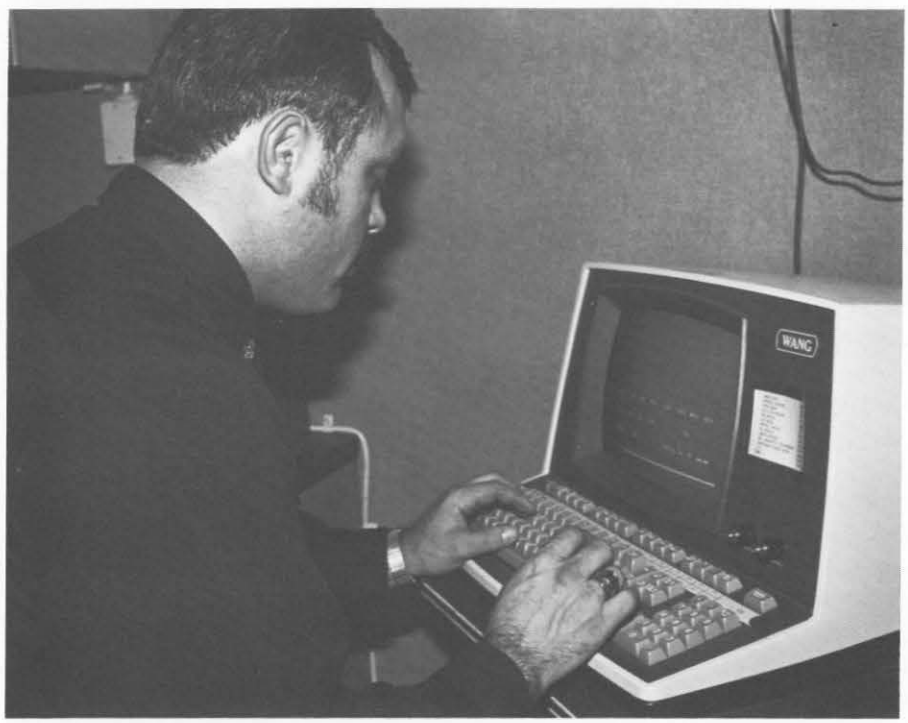
Although the treatment options available to EMT personnel are inherently limited, simply having them present to clean and dress small cuts and abrasions has reduced the number of personnel referred to the nearby tender or medical center clinic by 20 to 30 percent. In addition, having a specifically designated crewmember always available to render first aid makes the entire crew feel more secure. A thorough, continuing education program run by HMC Raible and HM2 Manness, both certified EMT instructors, insures the maintenance of up-to-date proficiency in the latest procedures. All cases seen by the EMT's are referred to the independent duty corpsman the following morning.

Working together, *Scott*'s leadership is trying to minimize every health hazard. One area of particular interest has been the two large Jered vacuum sewage plants aboard. In preparation for operation and maintenance of

CDR Frank is Executive Officer of USS *Scott*.

Photos by ETC Thomas J. Brady and LTJG R.L. Stephens

EN2 Brian L. Kamin and ENFN William N. Thompson begin work on sewage plants. Masks have been pulled down for the photo. Ordinarily, both wear disposable work outfits. Following maintenance and cleanup, the men disrobe and shower before leaving the space. Surgical gowns are then worn to the crew's shower room where a second shower-shampoo is required. Right: HMC Raible extracts information about a crewmember from the automated data base.



these plants, a Sewage and Waste Advisory Board (SWAB) was formed. Chaired by the executive officer, this small group consists of the chief corpsman, chief engineer, chief hull technician, and auxiliaries officer. The SWAB reviewed in detail the health hazards associated with each step of plant operation and maintenance. Then a comprehensive plan for the ship class was developed, typing together the guidance of both the *NAVSHIPS Technical Manual* and the *Manual for Preventive Medicine Afloat*. This plan lays out in detail specific steps to contain sewage contamination and to clean after progressively higher levels of maintenance. Meeting semiannually, the SWAB reviews the previous 6 months' operations, continually looking for ways to improve the margin of safety for those tasked with close exposure to the sewage plants.

Recent advances in medical technology have formed the basis for an increased number of preventive medicine programs which, when effectively administered, can insure a higher level of personnel preparedness to perform shipboard duties. While the sheer number of these programs may appear staggering to some, each is essential to some facet of the ship's operations. The tables list the major preventive programs implemented aboard conventional surface warfare ships such as *Scott*. Table 1 tabulates programs providing individual health care and Table 2 lists organizational level programs in support of the total command clinical effort.

Despite the magnitude of the professional effort required to administer the programs found in the tables, a corresponding increase in the number of corpsmen assigned to ships, such as *Scott*, has not been possible. However, in addition to the obvious advantages inherent in medical ADP support, a number of other policies available to every command afloat can greatly ease the pressure on the Medical Department. Foremost, there is command attention in every facet of

TABLE 1

Program	Annual Participants
Hearing Conservation	340
Heat Stress	450
Immunizations	450
G6PD Blood Screening	350 (one-time test)
TB Tests (PPD)	450
TB Tests (X-ray)	20
Physicals	120
Annual Dental Exams	450
Stress and Blood Pressure Monitoring	10
Antabuse Program	10
Urinalysis Testing	360
Weight Control	20
Asbestos	40
Medical/Dental Record Screening	450

TABLE 2

Program	Hours a Year Per HM
First Aid Training (Officer and Enlisted)	50
Sick Call	300
EMT Training	37
Officer Training (Special)	10
Corpsman Schools	60
Emergencies	15
Inventory (Storerooms and Remote Equipment)	20
Stretcher-Bearer Training	50
Counseling	80
Cleaning	200
Boards and Committee Meetings	100
Sanitation Inspections	50
Sanitation Training	35
Water Testing	150
Pest Control	30
Occupational Health/Industrial Hygiene	50
Appointments	20

the program. The executive officer and commanding officer closely review Medical Department reports on a daily, weekly, and monthly basis. The medical services and outpatient morbidity reports receive special attention to identify any growing trends in disease vectors, e.g., a sudden increase in fungal diseases indicative of poor sanitary conditions in a shower room. The Medical Department also receives high priority for funding, second only to damage control. For FY83 the Medical Department is budgeted for $12,000 which, for a ship of *Scott's* size, appears adequate both to maintain required stock levels and augment medical stores with new drugs and equipment that we find helpful and efficient. To obtain information on the latest procedures and requirements, regular assist visits are scheduled not only with the medical staffs of Commander Destroyer Squadron 10 and Commander Naval Surface Force, U.S. Atlantic Fleet but also with the Naval School of Health Sciences, Bethesda Detachment, and the Environmental Preventive Medicine Unit No. 2. One program of tremendous mutual benefit has been 1-week cruises for students in the Advanced Hospital Corps School. This is good experience for the students and keeps *Scott* corpsmen abreast of the latest school curriculum.

In peacetime the reputation of a warship, to a large extent, is determined by her ability to meet operational commitments. Accordingly, any preventable situation, such as a medevac, that interferes with that mission must be avoided. To this end, *Scott's* preventive medicine program is successfully using every resource to keep our shipmates healthy and battle-ready. □



HM2 Robert D. Manness tests fresh water.

USS Scott *(DDG-995)*





U.S. Navy



Home of BUMED
a hilltop in foggy bottom

Controversy and Transition 1917-1942

Conclusion

Entry of the United States into World War I on 6 April 1917 found the Washington Naval Hospital unprepared to receive the sick and wounded expected from the battlefields of France. By the end of the year a tent storage building had been erected as well as an addition to the Hospital's mess hall and kitchen. At the south end of the reservation carpenters hastily constructed eight temporary wooden structures to meet the wartime emergency.

The Medical School also took on a slightly different look. Both the east and west wings received additions to their southern exposures. The new space in the west wing was devoted to experiments related to submarines.(*1*)

Because of the war, the School found it necessary to add laboratory technician courses for enlisted personnel. One such course dealt with treating the victims of gas warfare. Others taught electrocardiography and analytic chemistry. Instruction increased in existing specialties and the Medical School became the headquarters for training epidemiological and sanitary units that would be deployed to the Western Front.

The war ended in 1918 and 2 years later courses for medical officers were increasingly geared toward specialization. The School sponsored cooperative programs in surgery at the Mayo Clinic; internal medicine at Phipps Institute and Pepper Laboratory at the University of Pennsylvania; ophthalmology and otology at the New York Eye and Ear Infirmary and Washington University, St. Louis; and general medicine at the Harvard Medical School.

On 3 Feb 1923 the dental school was established as a department of the Naval Medical School. It provided several postgraduate specialties and served as the Hospital's dental department.

By the following year an aviation department was instructing naval medical officers "as to the physical examination necessary preliminary to flying . . ."(*2*)

The war years saw a tremendous increase in the Hospital's patient load. In 1912 there had been 508 admissions. In 1918, at the height of U.S. involvement, 2,000 patients were admitted. The Armistice did not stem the flow. The great influenza epidemic and the admission of war veterans throughout the 20's under the auspices of the Veterans' Bureau strained resources to the limits. Hospital buildings designed near the turn of the century were not only showing their age but were unable to bear the unrelenting pressure.

Fire Traps

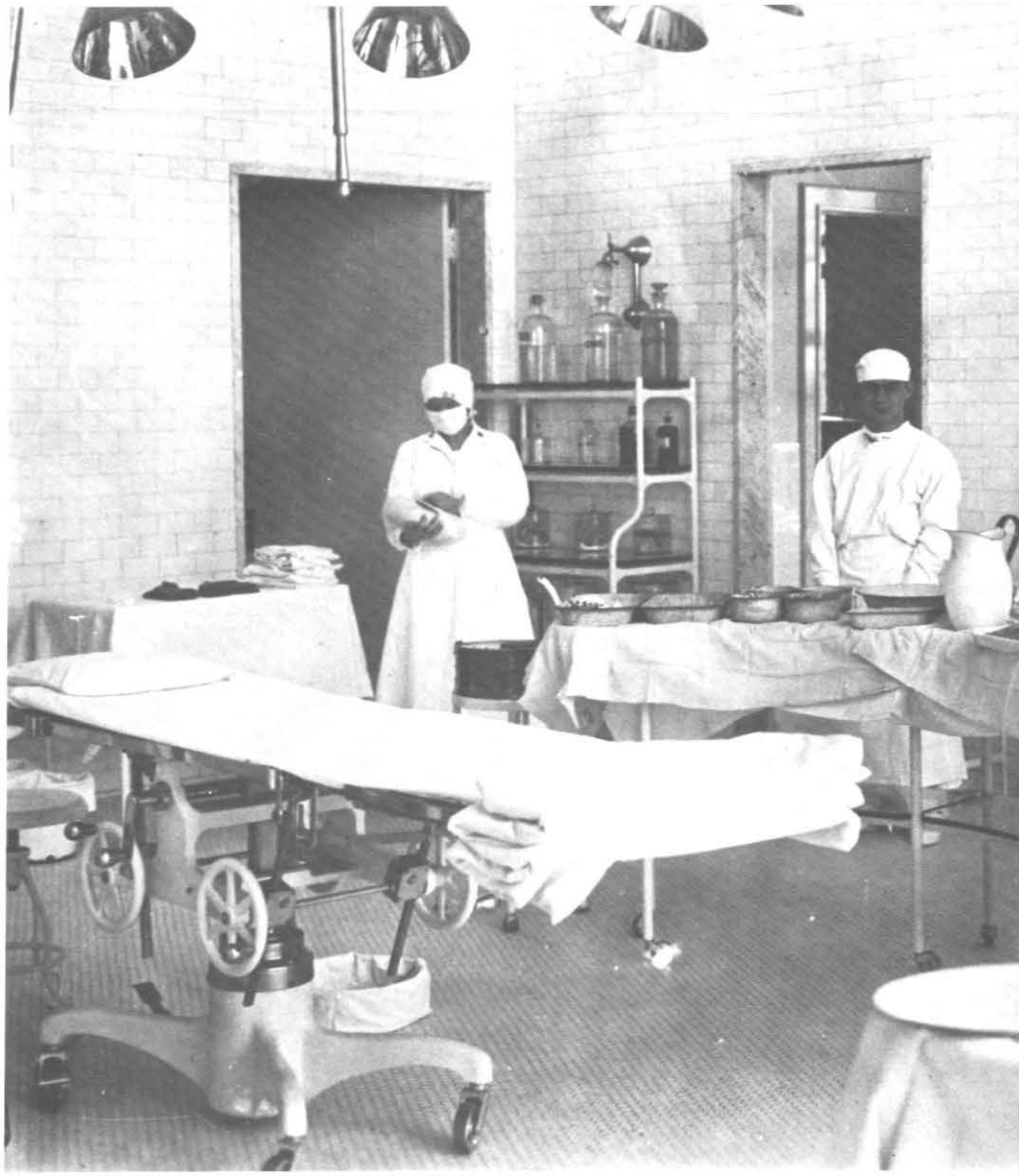
By 1929 Navy planners were seriously discussing the possibility of replacing Observatory Hill's existing buildings with a new, modern medical center that would incorporate under one roof the Hospital and the Medical School with its labs, classrooms, library, and dental department.

In January 1930 the Surgeon General of the Navy, the Chief of the Bureau of Yards and Docks, and a representative of the Veterans' Bureau inspected the facilities. They found conditions deplorable and recommended that everything, including the old Observatory building, be razed. The team also attacked the compound's layout for its inefficiency.

Nurses' quarters (Building One) in 1928. Below: The quarters had a downstairs dining room.



Photos from the HUMLD Archives



Food for the sick, prepared in kitchens of the main hospital building, had to be carried to the temporary wards at the bottom of the hill. Ambulatory patients in those wards were forced to walk up the hill for their meals in the main mess hall or be taken there by ambulance. Patients on the wards in the main hospital who required physiotherapy or occupational therapy had to walk or be driven downhill to the lightly constructed, two-story structures for treatment.

Of the 435 beds in the entire hospital complex, more than 50 percent were in these eight "tempos." Melvin J. Maas of the Veterans' Bureau was shocked by their rundown condition. "[I think it] a disgrace to house our men in shacks that would be condemned and discontinued by any municipality in this country. Those temporary buildings . . . are the worst set of fire traps imaginable. . . ."(3) Several days later, a somewhat more dispassionate naval inspector nevertheless came to a similar conclusion. "All temporary buildings are regarded as serious fire traps . . . At fire drill two lines of hose, attached to a fire plug . . . evidenced such feeble pressure as to be ineffective against fire . . ."(4)

Almost everyone found the main hospital hopelessly obsolete. Increasing demands had made it necessary to convert the basement of the main building into spaces for special treatment, examinations, and the eye, ear, nose, and throat department. These rooms, originally designed for storage, were poorly lighted, ventilated, and congested. More importantly, the main building had space for only 96 beds. The separate sick officers' quarters were constantly overcrowded and patients often had to wait for beds.

Half a Loaf

Based on recommendations of the inspectors, a bill was introduced in the House of Representatives authorizing the Secretary of the Navy "to replace, remodel, or extend existing structures and to construct additional buildings



The operating room (second floor Building Four) in 1924. Below: Sick officers' quarters (Building Five)



at the United States Naval Hospital and Naval Medical School, Washington, D.C., at a cost not to exceed $3,200,000."(5) The ultimate plan was to build a hospital center that would centralize all activities on Observatory Hill's high ground, where patients could be treated effectively and the management of the complex simplified. The new hospital would have a 524-bed capacity that could be expanded to 724 beds in an emergency.

The campaign for the new center could not have come at a worse time. The Nation had just been plunged into the Great Depression and government spending cuts were already being implemented. On 1 March 1930 the Bureau of the Budget advised the Navy that the original $3,200,000 would have to be more than halved to conform with President Hoover's austerity program. Only $1,500,000 would be authorized to build the new hospital and of that $250,000 would have to come from the Naval Hospital Fund, a reserve needed for other hospital projects. These new provisos were written into a modified version of the original bill.

As far as the Navy was concerned, half a loaf was really no loaf at all. A new facility simply could not be built on Observatory Hill for $1.5 million. The Navy, therefore, recommended against passage of the legislation, hoping the necessary appropriations would be forthcoming in a future budget. The Great Depression, it seemed, had momentarily saved the buildings on Observatory Hill from the wrecker's ball.*

Humanity Hill

Even with the open-ended postponement, both military and civilian planners saw the development of Observatory Hill as inevitable. Surgeon General of the Navy Charles E.

*Although an amendment to the original legislation exempted the old Observatory from destruction, the landmark was conspicuously absent from an artist's conception of the new medical center dated 25 Feb 1932 (see p.15).

Riggs referred to the grounds as "Humanity Hill," and predicted that the new medical center would be an impressive addition to the Washington skyline.

How a modern medical complex would fit into that skyline became a major subject of controversy. For years the neighborhood west of the White House, on the outer fringe of the Federal district, had been an industrial area, home to gasworks, breweries, and foundries. In stark contrast, the Lincoln Memorial, completed in 1922 and the Arlington Memorial Bridge finished 10 years later, became the foci of what was supposed to become a district of new Federal buildings called the Northwest Triangle. Any redevelopment of Observatory Hill would have to fit within that context and satisfy the National Capital Park and Planning Commission (NCPPC) and the Commission of Fine Arts. The former had to pass upon the utilitarian and economic effects of projects as they affected the city. The latter made recommendations as to the harmony of design. By law, any plan was also subject to approval by the Public Building Commission.

What faced the Navy planners was the problem of space. The original tract had since dwindled with the transfer in 1901 of 5 acres of the western portion of the compound to the Marine-Hospital Service. The Public Health Service now administered the plot. Street encroachment took still more land until only 10 acres remained. How could the facilities be expanded and yet satisfy the NCPPC, Commission of Fine Arts, and the Public Building Commission? Any structure that overshadowed the Lincoln Memorial was unacceptable. This limitation quickly killed a 1929 plan calling for a seven- or eight-story tower. A year later the Bureau of Yards and Docks omitted the tower and limited the building height to five stories but that design was also rejected.

In November 1931 the Navy selected the Allied Architects of Washington, D.C., Inc. to draw up new plans for the site, yet even as the blueprints were completed, it was becoming more and more obvious that Observatory Hill was just too small to accommodate a center that would include the Medical School, dental school, technical schools for enlisted personnel, laboratories, a power plant, and quarters for corpsmen, nurses, and officers. Frederic Delano, Chairman of the NCPPC, argued that a new site, perhaps in the Washington suburbs, was really the answer. Any new buildings constructed on Observatory Hill should "be readily convertible into office buildings because of the future need of the present site for the executive



The Hospital's Physiotherapy Department.

departments of the Government."(6) Delano suggested a site for the medical center on land just south of the Walter Reed Army Hospital. Other schemes promoted the grounds of the new Naval Observatory or St. Elizabeths Hospital. Delano sought the support of selected congressmen and senators, but the Navy, which showed no eagerness to move, had its own allies on Capitol Hill.

Naval Medical Center

The controversy dragged on until 1937 when Surgeon General of the Navy P.S. Rossiter supported a transfer of the Hospital and Medical School. More importantly, the House Committee on Naval Affairs pointed out that "the facilities at the present naval hospital are entirely inadequate to fully and completely provide for the [necessary] activities and, too, the space for expansion is so limited that there is no room for the additional requirements that would be necessary in time of an emergency."(7)

The 1931 Naval Act was amended authorizing the Secretary of the Navy "to construct in the District of Columbia, or in the immediate vicinity thereof, on land already acquired or hereby authorized to be acquired . . . buildings to replace the present Naval Hospital and Naval Medical School . . . including facilities for the Naval Medical Center and Naval Dental School:* Provided, that the total cost of the land and of construction hereby authorized shall not exceed $4,850,000."(8)

There would be no further roadblocks. Acquisition of a 247-acre tract in nearby Bethesda, MD, and the construction of the Naval Medical Center became Franklin D. Roosevelt's personal crusade.*

What would become of Observatory Hill now that the new Naval Medical Center was a fait accompli? There were those who recognized the historic significance of the old site. In 1939 Consulting Architect William T. Partridge suggested restoration for the old Observatory and a park for its surroundings. A year later plans were unveiled for the Northwest Rectangle, a 10-year project that would concentrate defense-related Federal agencies in the area west of the Mall. The NCPPC raised the possibility of turning the Naval Hospital grounds into a park and converting the old Observatory into a planetarium, but the outbreak of World War II ended these ambitious plans.(9)

*Department of the Navy General Order 70 of 20 June 1935 established the Naval Medical Center under the Bureau of Medicine and Surgery. On 1 Aug 1936 the Naval Dental School was established as an independent command under the Center.

*See "The President's Hospital," *U.S. Navy Medicine*, April 1980.



A nurse instructor supervises corpsmen on the wards.



Cherry blossoms on Observatory Hill: In 1912 the Government of Japan gave 3,000 cherry trees to the American people. When it became necessary to thin out those trees planted along the Tidal Basin in 1922, 12 were replanted at the Naval Hospital. Today only one survives.

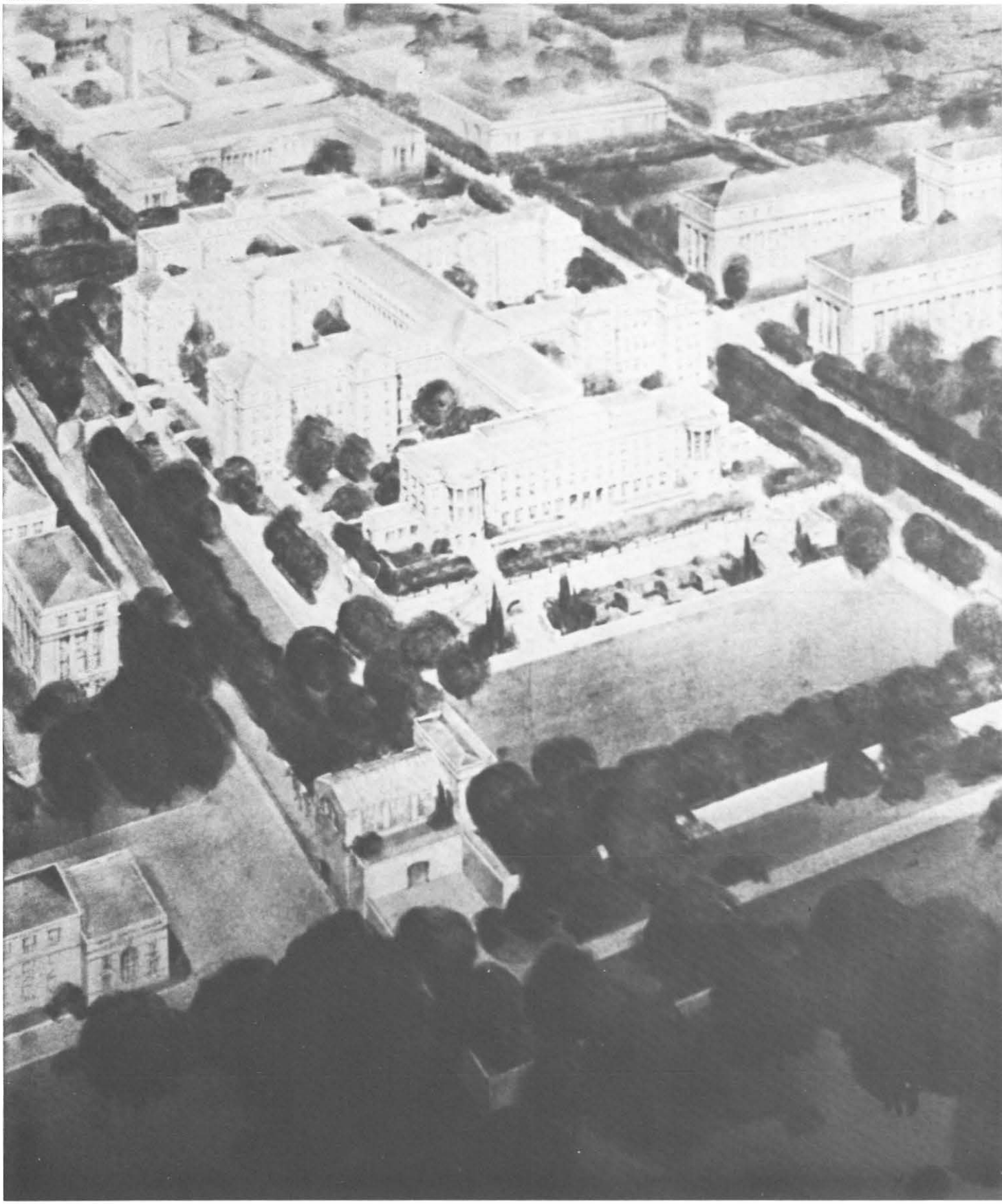
BUMED Headquarters

On 31 Aug 1942 President Roosevelt dedicated the new Naval Medical Center in Bethesda and the hilltop in Foggy Bottom received yet another tenant—the 100-year-old Bureau of Medicine and Surgery. Workmen quickly completed the transformation of classrooms, laboratories, and medical treatment rooms into offices for the Navy Medical Department's military and civilian administrators.

Exactly a century had passed since President Tyler selected Reservation Number 4 for the Depot of Charts and Instruments, and LT James Gilliss designed the structure that would house it. Each event that transpired on that compound added immeasurably to the histories of American science and medicine. In 1929 CAPT C.S. Butler, MC, USN, commanding officer of the Naval Medical School, wrote: "It is impossible [to note briefly] the many scientific discoveries . . . and developments that have come to be the heritage of the world's knowledge from the labors of men of science working on this historic spot." (*10*)

Alterations have erased almost all evidence of the 20th century hospital where thousands of patients were treated and the medical school that transformed civilian physicians into Navy medical officers. However, reminders of earlier days can be found in the old Observatory if one knows where to look—observation shutters through which astronomers measured the passage of the stars, a diamond-shaped slab in the basement marking the foundation of the 9.6-inch telescope pier, the east wing residence where Matthew Maury wrote the first textbook on oceanography, a mysterious underground passage designed for magnetic observations but abandoned shortly after it was completed in the 1840's, the south wing rotunda where Asaph Hall first observed the satellites of Mars, and the silver-domed central rotunda itself, Observatory Hill's crowning jewel.

National Archives



Starting from scratch: A 1932 architect's rendering showed the new medical center replacing Observatory Hill's existing buildings.



This photo taken on 6 Dec 1928 shows the compound's fire equipment building shortly before it was demolished. The structure once housed astronomical instruments from the two Transit of Venus expeditions of 1874 and 1882. The plaque below the pediment reads: "Erected by the Transit of Venus Commission 1876."

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Photo by the Editor[1]



The same scene today shows Building Three in the background. This was once the Naval Hospital's main administration building. Left: Past Surgeon General of the Navy RADM P.S. Rossiter with an artist's conception of the new Naval Medical Center at Bethesda, MD.

Acknowledgments

For their gracious assistance in the preparation of this series, the author thanks Elizabeth J. Miller, Curator of the Columbia Historical Society; Brenda Corbin, Theodore J. Rafferty, Steven J. Dick, and Gail S. Cleere, U.S. Naval Observatory; Sharon Gibbs and Lee Johnson, National Archives; Deborah J. Warner and Melody Kosmacki, Smithsonian Institution; Kevin Kaya and James Beasley, Bethesda Naval Hospital; and Mary Hall Kilpatrick and Lawrence P. Hall, grandchildren of Asaph Hall. —JKH

Hospital Corpsmen/Dental Technicians Update

• **HM/DT Ratings.** In FY84 there will be considerable growth within the HM/DT community. Projected billets at this time indicate a 2,585 increase for hospital corpsmen and 90 for dental technicians. Currently, the hospital corpsman rating is manned at 23,109 or 92.3 percent of its total authorized strength. The rating is the second largest in the Navy today surpassed only by the machinist mate. The dental technician community is manned at 3,263 or 94 percent of its total authorized strength.

• **New SRB's Approved.** As of 1 Oct 1982 the following NEC's were approved for a Selective Reenlistment Bonus:

(a) HM-8445 Advanced Ocular Technician

(b) HM-8478 Biomedical Equipment Technician, Advanced

(c) HM-8482 Pharmacy Technician

• **CANTRAC.** Recent changes were initiated in the January 1983 revision of the *Catalog of Navy Training Courses* (CANTRAC, Stock Number: 0502-LP-052-5280, 1983). It is extremely important that all HM/DT advisors familiarize themselves with these changes and career counselors have this latest edition at their disposal to provide efficient and knowledgeable assistance to HM/DT school candidates.

• **New Career Opportunities.** Medical Enlisted Commissioning Program: Beginning in FY84, 25 billets have been reestablished for enlisted HM/DT's to reach commissioned officer status in the Nurse Corps. The number of billets will increase to 50 in FY85 and 75 in FY86. For further information refer to BUPERSINST 1120.37B for eligibility requirements or discuss the program with your command career counselor. A NAVMEDCOM instruction concerning this program is presently being written and shall be issued in the near future.

• **Retention.** In FY82 the HM retention rate increased from 48 percent to 58 percent and is presently at 61 percent for the first quarter of FY83. The dental technician community has increased from 52.9 percent in FY82 to 57.1 percent for the first quarter of FY83.

• **New Dental Technician NEC Offered.** The newest technical specialty within the Medical Department is the Dental Hygiene Technician DT-8705. These technicians perform the clinical and professional functions of a dental hygienist. They will implement the Navy's preventive dentistry program, train and direct dental technicians assigned to preventive dentistry, and assist the public health dental officer and periodontist in the management of oral health care programs.

• **NEC Manual Change.** A recent change to the *NEC Manual* (NAVPERS 18068D) allows NEC-8425 to advance to pay grade E-9. The change will offer former holders of this NEC an opportunity to request reinstatement. Requests may be submitted on a NAVPERS 1221/1 to NMPC-407. Along with this change, the curriculum at Advanced Hospital Corps School was revised to include approximately 430 hours of advanced administrative training and logistical duties in Navy and Marine Corps operating forces units and shore activities. The clinical portion remained intact with increased emphasis on medical/surgical diagnosis, CPR instructor/trainer certification, and clinical rotation. Duties and responsibilities include assignment aboard LPH/LHA and CV/CVN type vessels as leading chief petty officers performing administrative, managerial, and leadership functions. At medical treatment facilities duties may include administrative assistant to chiefs of services and department heads or as a department head or assistant department head. Activities that determine a requirement for NEC-8425 in administrative support areas should consider adding this requirement when the annual Manpower Authorization review is conducted.

• **Training with the U.S. Air Force.** Course J3AZR98170-002, Dental Technician, provides career dental technicians with advanced training in technical skills and preventive dentistry. Training encompasses communicative techniques, advanced preventive dentistry and radiology procedures, and current concepts in dental care. Applicants must be E-4 and above on their second or subsequent enlistment and must have performed duties in a dental clinic for at least 12 months. *Quotas are limited and on a space available basis.* The training, held at Sheppard AFB, Wichita Falls, TX, must be paid for by the requesting command/activity.

For more information contact DTCM H.R. Moeller, USN, Naval Medical Command, Washington, DC 20372. Telephone: Autovon 294-1647, Commercial (202) 653-1647.

Prophylactic Administration of Benzathine Penicillin to Navy and Marine Corps Recruits

LT Herman M. Ellis, MC, USNR
LCDR Joel R. Crabbe, MSC, USN
HMC James R. Sims, USN
HM1 Leslie A. Pollock, USN

Prior to 1954 the Navy experienced an increasing rate of acute rheumatic fever in recruit training centers. In an effort to reduce the case rate, a non-random study was initiated at five recruit locations to determine the effectiveness of oral penicillin in reducing group A beta-hemolytic streptococcal pharyngeal infections. The latter were included with upper respiratory tract infections and monitored by hospital admissions. During this study the admission rate decreased. Statistical analyses were not done.

In 1959 the Armed Forces Epidemiological Board (AFEB) reexamined the issue of prophylactic penicillin for reducing group A beta-hemolytic streptococcal pharyngeal infections due to the increasing number of rheumatic fever outbreaks. The AFEB recommended benzathine penicillin, 900,000 to 1,200,000 units, for recruits if the hospitalization rate for group A beta-hemolytic streptococcal pharyngitis exceeded 10 cases per 1,000 per week. The recommendation was used as the Navy's standard until 1965 when NAVMED P-5052-17, *Treatment and Prevention for Streptococcal Diseases and Its Sequelae,* was published. These guidelines are essentially the same as those of the AFEB except that each training center was free to initiate prophylaxis based on past experiences with group A beta-hemolytic streptococcal pharyngitis.

Relatively little new data has become available since the 1950's on the effect of prophylactic benzathine penicillin administration on the case rate of group A beta-hemolytic streptococcal pharyngeal infections and sequelae at recruit training centers. Over 15 years have elapsed since the Navy first issued its initial guidelines for administration of prophylactic penicillin. Twelve years ago BUMED began requiring benzathine penicillin prophylaxis for all incoming recruits, due to increasing incidence rates of acute rheumatic fever and glomerulonephritis.

The mandatory prophylactic program continued well into the 1970's, when two Navy and Marine Corps recruit centers discontinued prophylaxis because of budgetary and manpower restrictions. At that time clarification and reexamination of the prophylactic program was requested by several naval regional medical centers because of the decreasing incidence of rheumatic fever and acute glomerulonephritis in recent years.

In February 1980 an evaluation of the occurrence of group A beta-hemolytic streptococcal pharyngitis at three recruit training centers was initiated by Navy Environmental and Preventive Medicine Unit No. 2 (NEPMU-2), Norfolk, VA, at BU-

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MED's request. The purpose of the study was to provide information as to whether certain recruit training commands should reinitiate the use of prophylactic penicillin in recruit populations.

Methods and Materials

The study population was comprised of all Navy and Marine Corps recruits assigned to three of the five recruit training centers, designated as centers X, Y, and Z. Random assignment was not used because it was assumed that assignment of a recruit to a particular center was not predicated on previous medical condition or socioeconomic class. Females were assigned to two of the centers. The recruits had no control in their assignment to individual centers. In estimating the total number of recruits per year, we assumed a 10 percent attrition rate primarily to other medical and nonmedical conditions at each center. The epidemic level was defined as more than 10 cases of streptococcal sore throat per 1,000 recruits per week, as confirmed by throat culture positive for group A beta-hemolytic streptococcus.

Centers X and Y had discontinued penicillin prophylaxis prior to initiation of the study, due to budget restraints. Center Z was also requested to discontinue prophylaxis from July to December 1980. This constituted the control period, during which the recruits did not receive penicillin prophylaxis. Center Z was requested to reinstitute penicillin prophylaxis on 1 Jan 1981. One million two hundred thousand units of benzathine penicillin were given intramuscularly to each recruit on the fourth day of the second training week during the second study period from January to June 1981.

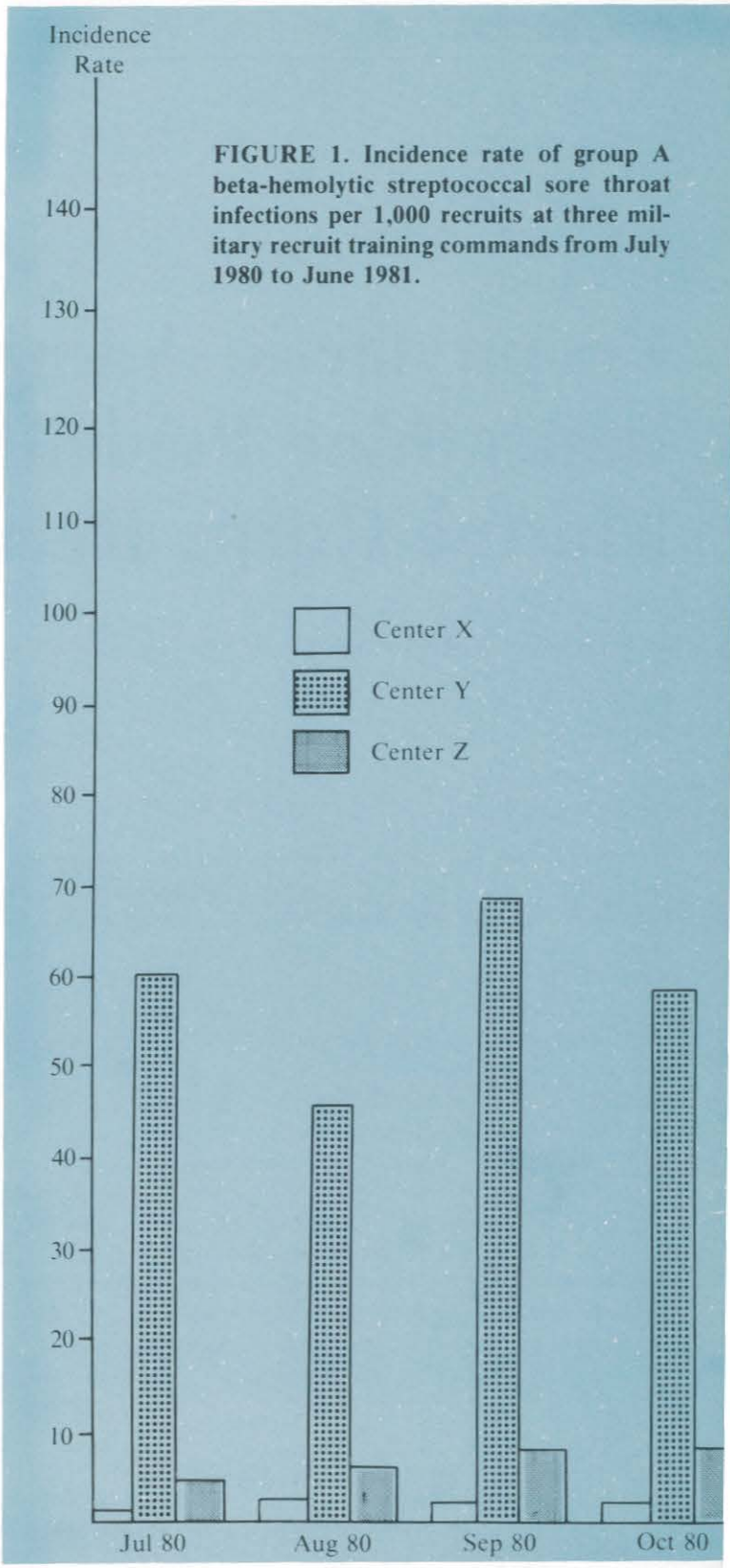


FIGURE 1. Incidence rate of group A beta-hemolytic streptococcal sore throat infections per 1,000 recruits at three military recruit training commands from July 1980 to June 1981.

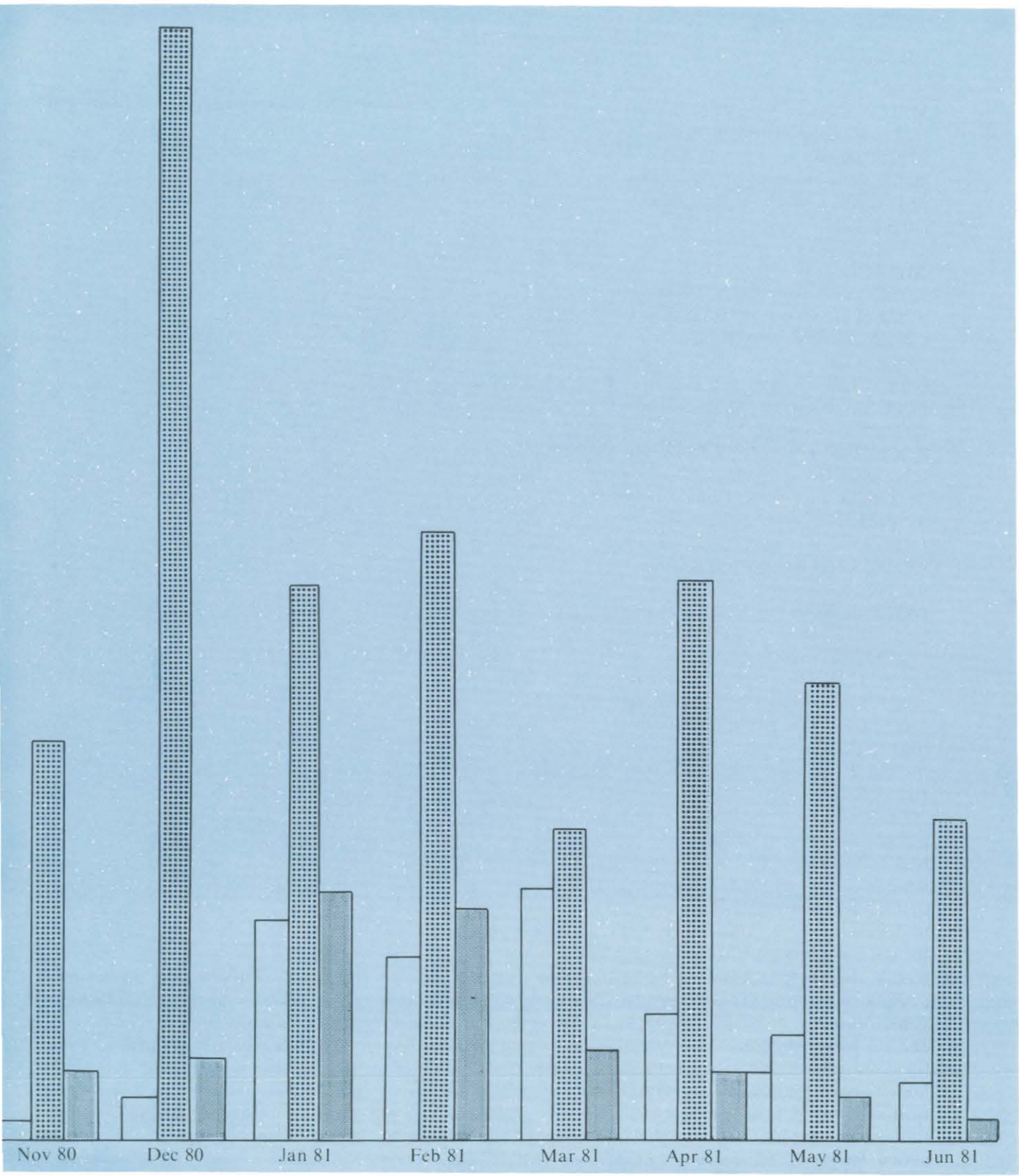

Nov 80
Dec 80
Jan 81
Feb 81
Mar 81
Apr 81
May 81
Jun 81

FIGURE 2. Cost-Benefit Analysis

Recruit Center	X	Y	Z
Actual Cost			
Number of Cases Group A beta-hemolytic streptococcal	622	2,044	897
Cost per recruit training day lost	$70	$40	$40
Total cost of lost days (Based on a lost of 2 days per recruit)	$87,080	$163,520	$71,760
Projected Cost With a 95 Percent Reduction of Cases*			
Number of Cases Group A beta-hemolytic streptococcal	31	102	45
Cost per recruit training day lost	$70	$40	$40
Total cost of lost days	$4,340	$8,160	$3,600
Number of recruits per year	29,100	28,900	31,600
Cost of benzathine penicillin prophylaxis for 1 year	$51,216	$50,864	$55,616
Total cost	$55,556	$59,024	$59,216
Savings	$31,524	$104,496	$12,544

*Administration of Bicillin® for an entire year with 50-inch spacing between bunks.

Centers X and Y continued nonadministration of penicillin prophylaxis during the second period.

Each month, the participating centers submitted to NEPMU-2 the total number of throat cultures found positive for group A beta-hemolytic streptococcus. Chi-square analysis was used to compare the three centers from July to December 1980 and from January to June 1981. The incidence of streptococcal pharyngitis was compared among all three centers during the control period, and the incidence at center Z was compared against centers X and Y during the second period.

Variables considered in the analysis included bed distance between recruits and laboratory methods of diagnosis of streptococcal organisms as well as penicillin administration. A team of personnel from NEPMU-2, including the epidemiologist, microbiologist, and one preventive medicine technician, visited all centers to verify data collection methods and reliability of the results. Physical data on the distance between bunks was gathered during the team visit.

The laboratory techniques used by all three centers were found to be similar. Throat cultures were collected using the Culturette System (Marion Scientific Corporation, Rockford, IL) and inoculated onto isolation media the same day. Trypticase soy or neopeptone agar, supplemented with 5 percent sheep blood agar, was used throughout the study. Group A strep-

tococcus colonies were presumptively identified as beta-hemolytic using the bacitracin disc procedure.(*1*) All cultures were incubated at 36.0°C with increased CO_2 concentrations. Using the bacitracin disc procedure, only 1.4 percent of group A streptococci were missed.

Statistical Analysis

From July to December 1980 an epidemic of group A beta-hemolytic streptococcal pharyngitis was noted at center Y, as compared to centers X and Z where the case rate was below the epidemic level. Statistical analysis demonstrated this difference to be significant ($X^2 = p < .001$), as shown in Figure 1. The distance between bunks at center Y was 27 inches less than at center X, and statistical comparison of case rates between these two centers for the period demonstrated a significant difference ($X^2 = p < .001$ with Yates' correction). The same analysis method was used to compare rates between centers X and Z (bunks at X being 8 inches farther apart than at Z), and between centers Z and Y (bunks being 19 inches farther apart at Z than Y). These analyses also yielded a statistically significant difference.

Streptococcal disease was again epidemic at center Y from January to June 1981. During this period center Z was administering prophylactic penicillin and experienced a decrease in case rate of more than 90 percent. Chi-square analysis showed this to be significant to $p < .001$. Center X, where the distance between bunks was 8 inches greater than center Z, did not administer prophylactic penicillin but also experienced a 75 percent decrease in the case rate, which was statistically significant ($X^2 = p < .001$).

As shown in Figure 1, the incidence of group A beta-hemolytic streptococcal sore throat infection was also found to vary seasonally.

Discussion

Epidemics of virulent streptococcal disease are associated with a high attack rate of rheumatic fever.(*2*) There has been a steady decline in rheumatic fever cases since the initiation of prophylactic penicillin in recruit training centers. In this study, benzathine penicillin given prophylactically did reduce streptococcal disease. Analysis data favored administration of penicillin as an effective measure to decrease morbidity of group A beta-hemolytic streptococcal pharyngitis.

Agreement on a single factor that reduces epidemic streptococcal disease is difficult, although there is a statistically significant result from penicillin, and evidence that bunk-spacing is inversely proportional to case rate.

The peacetime military community has not been convinced that adequate bunk-spacing is worth enforcing, since there are no data to supply additional motivation for enforcement of existing regulations.(*3*) During nonepidemic periods there is a statistical difference in streptococcal incidence associated with bunk-spacing, but during an epidemic period in a recruit environment, the effect is minimal or nonexistent.

The effects of penicillin prophylaxis and adequate bunk-spacing on decreasing group A beta-hemolytic streptococcal infections appear to be additive. Prophylaxis produces the greater effect, particularly during the seasonal peak from December to February. In this study the administration of penicillin was five times more effective in reducing cases of streptococcal sore throat than maintaining a 50-inch distance between bunks.

The cost-effectiveness of penicillin prophylaxis was considered in light of these findings. A cost-benefit analysis was undertaken, using the number of days lost due to infection, the cost of penicillin, and the cost of recruit training per day. For the purpose of analysis we assumed a 95 percent reduction in cases of streptococcal pharyngitis using prophylactic penicillin, a cost of $1.76 per dose, and an average of 2 lost man-days per illness. As shown in Figure 2 the Navy could save in excess of $145,000 per year at three such centers alone if prophylactic penicillin were administered and a space of 50 inches were maintained between bunks.

Rheumatic fever remains an important medical problem in the United States.(*4*) Experience with penicillin prophylaxis has shown that, in the recruit age group, anaphylactoid reactions are seen on the average of 1 to 5 cases per 1,000,000 penicillin doses administered.(*5*) While routine administration of prophylactic penicillin would be medically contraindicated in the absence of crowding conditions, this is not the case in the military situation at hand. In view of the crowded conditions at recruit training centers and the high potential for epidemic streptococcal pharyngitis, the minimal relative danger of anaphylaxis does not justify failure to use all methods possible to minimize such outbreaks.

The interrelationship between infectious disease, adequate spacing, and prophylactic medication must be considered when building recruit barracks for other military personnel. In addition, requests for waivers in order to increase recruit and all other populations must be reviewed carefully by competent medical authority as well as the line community, in view of the potential for increased streptococcal morbidity and increased monetary expenditures.

Without the use of prophylactic penicillin and adherence to proper bunking space in recruit centers, the projected costs will exceed $300,000 per year and this does not take into account the future health of the individuals involved.

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Assessing Patients' Health Status With the Navy Dental Health Questionnaire

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G.B. Pelleu, Jr., Ph.D.

The state of the art in medicine has reached such heights that conditions once considered debilitating or even pernicious (cardiovascular disease, endocrine problems, degenerative disorders) can be managed effectively. Many patients with these conditions now can and do lead long, productive lives. Dentists today treat an older, often medically compromised population. In addition, our culture fosters the belief that pills can cure all aches and pains.(*1*) Most medications can produce adverse oral manifestations, and some pharmacological regimens may have to be modified for use with routine dental care.(*2*) Consequently, the general health of the dental patient must become as much the concern of the dentist as the accurate diagnosis and treatment of oral disease.(*3*)

The success of dental treatment depends on the dentist's clinical expertise and the patient's ability to tolerate and respond to proposed care. It is no longer acceptable simply to ask how the patient feels before starting therapy. Modification in treatment planning may be required for medically compromised patients receiving pharmacological treatment, persons with undiagnosed conditions, or persons taking patent medications. This is a moral and legal responsibility of the clinician, and a thorough physical evaluation, including a detailed medical history, is mandatory.(*4*)

There are three currently accepted methods of obtaining a patient's medical history:

- using a printed questionnaire to be answered by the patient;
- oral communication with the patient; or
- using a printed questionnaire and oral communication.

Oral communication without a standard format may require much of the examiner's time and may, in fact, miss clinically significant information.(*5-7*) Conversely, it has been suggested that all written questionnaires be supplemented with oral communication to gain more understanding of the patient and to elaborate on significant findings.(*8,9*)

The Navy uses the Dental Health Questionnaire to obtain a patient's history. The patient indicates on the form whether he has diabetes, kidney trouble, high blood pressure, tumors, jaundice, etc. However, unlike a more comprehensive medical health questionnaire, this form does not encompass such signs and symptoms of disease as shortness of breath, swollen ankles, blood in urine, excessive bleeding, and excessive thirst.(*9*)

A comprehensive medical history should elicit:

- present health status of patient;
- list of major hospitalizations;
- record of childhood and adult illnesses;
- history of any allergies;
- medications being taken;
- familial and social history; and
- review of body systems.

In an earlier study, the Dental Health Questionnaire was compared with a comprehensive medical health form in 100 male and 100 female Marine Corps recruits.(*10*) The purpose of the study was to determine whether it is reliable in reflecting the true physical and emotional status of the patient. The results showed that the questionnaire does not meet the established norm reflected by the literature. It appeared to be inadequate even in a population that consisted of young people (17 to 29 years old) who, being recruits, were presumably healthy.

The purpose of the present investigation was to evaluate the Dental Health Questionnaire for comprehensiveness in determining the physical and emotional status of a general

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DENTAL HEALTH QUESTIONNAIRE

NAVMED 6600/3 (Rev. 12-72)

CHIEF COMPLAINT	DATE	CHIEF COMPLAINT	DATE

CHECK AND SIGN

	YES	NO		YES	NO
PRESENTLY UNDER CARE OF PHYSICIAN			LIVER OR KIDNEY TROUBLE		
MEDICAL DIAGNOSIS:			MAJOR WEIGHT CHANGE		
ANY ALLERGIES OR SENSITIVITIES			GROWTH OR TUMOR		
CONVULSIONS OR DIZZY SPELLS			HIGH BLOOD PRESSURE		
RECENT ILLNESS			TUBERCULOSIS		
ILL EFFECTS FROM INJECTIONS OF NOVOCAIN OR XYLOCAINE			SINUS TROUBLE		
TOOTH EXTRACTION–DIFFICULTY			HEART DISEASE/RHEUMATIC FEVER/MURMUR		
PROLONGED BLEEDING FROM CUTS, ETC.			RECEIVING MEDICATION		
DIABETES OR JAUNDICE			X-RAY TREATMENT		

OTHER

SIGNATURE *(Patient's)*	DATE	SIGNATURE *(Dental Officer's)*	DATE

RADIOGRAPHS	WET	DRY	DATE	RADIOGRAPHS	WET	DRY	DATE

ROUTING/TREATMENT PLAN

PATIENT IDENTIFICATION

SEX	GRADE, RATE OR POSITION	ORGANIZATION UNIT	COMPONENT OR BRANCH	SERVICE, DEPT., OR AGENCY	PHONE

PATIENT'S LAST NAME-FIRST NAME-MIDDLE NAME	DATE OF BIRTH (DAY-MONTH-YEAR)	SOCIAL SECURITY NO.

☆U.S. Government Printing Office: 1980—703-100/8560 2-1

S/N 0105-LF-216-6631

PATIENT EVALUATION
NNDC 6600/7 (New 8-81)

Name Sex Date of birth Social Security No.

VITAL SIGNS

Temperature _____ Pulse _____
Blood pressure _____ Rate of respiration _____
Height _____ Weight _____

DENTAL HISTORY

Chief complaint _____
History of present illness _____
Past dental history _____

MEDICAL HISTORY

Present health status _____
History of hospitalizations _____
Present or past illness _____
Allergies or sensitivities _____
Medications, drugs, pills _____

FEMALES ONLY

Oral contraceptives _____ Pregnancies _____
Change in menstrual pattern _____ Living children _____

FAMILY HISTORY

Diabetes _____ Hypertension _____ Cardiac _____ Epilepsy _____
Other _____

SOCIAL HISTORY

Occupation _____ Smoking _____ Alcohol _____ Other _____

REVIEW OF SYSTEMS

I. Skin

Y N Itching _____ Y N Pigmentations _____
Y N Rash _____ Y N Lack of body hair _____
Y N Ulcers Y N Loss of body hair _____

II. Extremities

Y N Varicose veins _____ Y N Muscle weakness, pain _____
Y N Swollen painful joints _____ Y N Bone deformity, fracture _____

III. Eyes

Y N Blurring of vision _____ Y N Drooping of eyelids _____
Y N Double vision _____ Y N Glaucoma _____

IV. Ear, Nose, Throat

Y N Earache _____ Y N Sinusitis _____
Y N Hearing loss _____ Y N Frequent sore throat _____
Y N Frequent nosebleeds _____ Y N Hoarseness _____

V. Respiratory

Y N Cough Y N Wheezing, asthma _____
Y N Blood in sputum _____ Y N Tuberculosis, exposure to _____

VI. Cardiac

Y N Shortness of breath _____ Y N High, low blood pressure _____
Y N Pain, pressure in chest _____ Y N Rheumatic, scarlet fever _____
Y N Swelling of ankles _____ Y N Heart murmur, attack _____

VII. Gastrointestinal

Y N Difficulty swallowing _____ Y N Hepatitis _____
Y N Abdominal pain, ulcers _____ Y N Jaundice _____

VIII. Genitourinary

Y N Difficulty, pain on urination _____ Y N Kidney infections _____
Y N Blood in urine _____ Y N Syphilis, gonorrhea _____
Y N Excessive urination _____ Y N Genital herpes _____

IX. Endocrine

Y N Thyroid trouble _____ Y N Diabetes _____
Y N Weight change _____ Y N Excessive thirst _____

X. Hematopoietic

Y N Easy bruising _____ Y N Anemia _____
Y N Excessive bleeding _____ Y N Leukemia _____

XI. Neurologic

Y N Frequent headaches _____ Y N Neuritis, neuralgia _____
Y N Dizziness, fainting _____ Y N Paresthesias, numbness _____
Y N Epilepsy, fits _____ Y N Paralysis _____

XII. Psychiatric

Y N Nervousness _____ Y N Depression, excessive worry _____
Y N Irritability _____ Y N Nervous breakdown _____

REGIONAL EXAMINATION

Face _____ Hard palate _____
Lips _____ Soft palate _____
Buccal mucosa _____ Oropharynx _____
Tongue _____ Gingiva _____
Floor of the mouth _____ Teeth _____
Lymph nodes _____

SUMMARY _____

RECOMMENDATIONS _____

DISPOSITION _____

Signature of patient Date Signature of Doctor Date

TABLE 1. Responses to Dental Health Questionnaire, NAVMED 6600/3 (Rev. 12-72), for 400 Patients

Questions	Number of Positive Responses	Percent
Presently under care of physician	107	27
Any allergies or sensitivities	98	24.5
Convulsions or dizzy spells	27	7
Recent illness	67	17
Ill effects from injections of Novocain or Xylocaine	20	5
Tooth extraction difficulty	23	6
Prolonged bleeding from cuts, etc.	15	4
Diabetes or jaundice	26	7
Liver or kidney trouble	29	7
Major weight change	29	7
Growth or tumor	43	11
High blood pressure	38	10
Tuberculosis	16	4
Sinus trouble	62	16
Heart disease/murmur/rheumatic fever	81	20
Receiving medications	118	30
X-ray treatment	17	4

patient population requesting dental care at the National Naval Denter Center, Bethesda, MD. Comparisons were made with a local medical health questionnaire.

Methods and Materials

Four hundred randomly selected dental patients, 224 men and 176 women, were evaluated in this investigation. The age range was 11 to 88 years, with a mean age of 35. Informed consent was obtained from all subjects. Each patient was administered the Dental Health Questionnaire, NAVMED 6600/3 (Rev. 12-72) and a local form, Patient Evaluation, NNDC 6600/7 (New 8-81). The Patient Evaluation form contained all the essential elements of a comprehensive medical health questionnaire and was accepted as the standard of accuracy. The data obtained from each of the forms were abstracted and significant omissions or inclusions were noted.

Results

The data collected with the Dental Health Questionnaire are summarized in Table 1. The information elicited by the Patient Evaluation form is presented in Table 2.

The patient's answer on the form indicating that there is some history of hospitalization, allergies, family illness, etc., or a "yes" answer to a question concerning symptoms of disorders of body systems is defined as a positive response. The Dental Health Questionnaire produced an average of 1.8 positive responses per male patient and 2.3 positive responses per female patient. The more comprehensive Patient Evaluation form elicited an average of 8.0 positive responses from the men and 12.5 positive responses from the women. The overall incidence of positive findings per patient increased from 2 on the Dental Health Questionnaire to 10 on the Patient Evaluation form. Positive responses direct the clinician toward diagnoses and areas that need investigation.

TABLE 2. Responses to Patient Evaluation, NNDC 6600/7 (New 8-81), for 400 Patients

Questions	Number of Positive Responses	Percent
Medical History		
History of hospitalizations	244	61
Present or past illnesses	140	35
Allergies	100	25
Medications, drugs, pills	177	44
Females Only		
Oral contraceptives	31	8
Change in menstrual pattern	14	4
Pregnancies	126	32
Living children	98	24.5
Family History		
Diabetes	98	24.5
Epilepsy	21	5
Hypertension	118	30
Cardiac	134	34
Other	101	25
Social History		
Smoking	163	41
Alcohol consumption	199	50
Review of Systems		
I. Skin		
Itching	90	23
Rash	83	21
Ulcers	11	3
Pigmentations	30	8
Lack of body hair	7	2
Loss of body hair	14	4
II. Extremities		
Varicose veins	35	9
Swollen, painful joints	61	15
Muscle weakness, pain	38	9.5
Bone deformity, fracture	61	15
III. Eyes		
Blurring of vision	71	18
Double vision	12	3
Drooping of eyelids	10	3
Glasses, contacts	198	49.5
IV. Ear, Nose, Throat		
Earache	99	25
Hearing loss	53	13
Frequent nosebleeds	19	5
Sinusitis	74	19
Frequent sore throat	58	15
Hoarseness	59	15

(continued)

Questions (con.)	Number of Positive Responses	Percent
V. Respiratory		
Chronic cough	26	7
Blood in sputum	10	3
Wheezing, asthma	29	7
Tuberculosis, exposure to	25	6
VI. Cardiac		
Shortness of breath	63	16
Pain, pressure in chest	55	14
Swelling of ankles	50	12.5
High blood pressure	75	19
Rheumatic, scarlet fever	18	5
Heart murmur, attack	55	14
VII. Gastrointestinal		
Difficulty in swallowing	39	10
Abdominal pain, ulcers	47	12
Hepatitis	18	5
Jaundice	13	3
VIII. Genitourinary		
Difficulty, pain on urination	30	8
Blood in urine	13	3
Excessive urinations	37	9
Kidney infections	36	9
Syphilis, gonorrhea	20	5
Genital herpes	1	0.2
XI. Endocrine		
Thyroid trouble	24	6
Weight change	58	15
Diabetes	18	5
Excessive thirst	27	7
X. Hematopoietic		
Easy bruising	56	14
Excessive bleeding	17	4
Anemia	30	8
Leukemia	1	0.2
XI. Neurologic		
Frequent headaches	50	12.5
Dizziness, fainting	42	10.5
Epilepsy, fits	5	1
Neuritis, neuralgia	6	1.5
Paresthesias, numbness	19	5
Paralysis	5	1
XII. Psychiatric		
Nervousness	51	13
Irritability	29	7
Depression, excessive worry	41	10
Nervous breakdown	7	2

Discussion

Alterations in routine dental therapy may be required in the medically and pharmacologically compromised patient. As a consequence, the medical questionnaire becomes an important factor in physical evaluation. The essential elements of a comprehensive medical evaluation are those that will help the clinician determine the present health status of the patient and will provide a record of major hospitalizations, a history of childhood and adult illnesses, evidence of allergies, a list of medications the patient is taking, pertinent familial and social history, and a review of major organ systems.

The Dental Health Questionnaire does not provide for a logical summary of past and present medical conditions. A list of earlier operations, injuries, accidents, hospitalizations, and comments about anesthesia and drug reactions must take on significance when 61 percent of the patients in the study gave a history of previous hospitalization, 35 percent admitted to past or present illness, 44 percent were taking medications, and 25 percent related a history of allergies. The prediction of postoperative complications must be considered significant when 8 percent of the female patients admitted to taking oral contraceptives. The possibility of an undiagnosed pregnancy that may be associated with changes in menstrual pattern, as reported by 4 percent of the female patients, must become important from the standpoint of radiation hygiene.

Family history is important in many diseases, particularly those of the nervous system, bleeding disorders, endocrine problems, cardiovascular conditions, and allergic reactions. The personal history of a patient may alert the clinician to the presence of environmental and cultural factors that can significantly influence the patient's general health. Knowing that better than one of four patients seen may have had a genetic predisposition to disease and that half of all patients used alcohol or tobacco should alert the clinician to symptoms whose significance might otherwise go unrecognized.

The chief complaint and medical history should lead toward the investigation of areas that may have particular significance. The status of organ systems may suggest the presence of concomitant systemic conditions, contribute to the diagnostic process, and influence projected treatment protocols and prognosis. An important cause of pruritus is psychogenic reaction to stress or strain. This type of pruritus often affects the scalp, and it may be associated with other sensory complaints such as a bitter taste or burning tongue. Pruritus, which was reported by one-fifth of the patients, was not identified on the Dental Health Questionnaire, yet it may be the only indication that an apparently low-risk patient requires special antianxiety therapy during dental care.

Although both forms used in the study accurately identified patients with a history or symptoms of sinusitis, problems of earache reported on the comprehensive form by one-fourth of the patients, may be cardinal in the differential diagnosis of many orally-related conditions. Sore throat, regardless of the cause, is the outstanding symptom of pharyngitis.

About two-thirds of all acute illnesses are viral infections, but a sore throat could also be a symptom of gonococcal pharyngitis. If it is associated with fever, malaise, irritability, lymphadenopathy, and gastrointestinal disturbances, a sore throat may be a prodrome of hepatitis. The frequent sore throats reported by one of every seven patients can require alteration in routine office procedures. There was a similar incidence of previously unidentified hoarseness. Hoarseness that has persisted for more than 2 weeks should be evaluated further.

A history of asthma, chronic bronchitis, or emphysema (asthma and chronic cough had a combined incidence of 14 percent) is no less important than a history of exposure to or the presence of active tuberculosis. In fact, from the standpoint of office emergencies, this information is vital for proper response.

Both forms accurately identified most patients with cardiovascular disease, but the comprehensive form was more reliable in leading to a diagnosis of hypertension. The 100 percent increase in the diagnosis can be attributed to questions about symptoms included on the comprehensive form. Many patients are not aware of their hypertension, and early detection may minimize long term side effects.

Historical profiles are admittedly unreliable in identifying patients with hepatitis, syphilis, and gonorrhea (especially the *type* of hepatitis and gonococcal pharyngitis). This reality brings added significance to the admission during comprehensive evaluation by 1 in 10 patients to having had one of these conditions or to being currently treated for one of them.

Excessive bleeding was reported by 4 percent of patients on each form. The comprehensive form, however, also revealed that 14 percent had symptoms of easy bruising. This can be one of the most serious and significant signs of disease or of complication from drug therapy.

The majority of patients who enter a dental office will admit to being nervous or anxious. The stress of contemporary society and the prospect of real or imaginary illness is thought to induce these reactions. If they can be clearly related to a stressful event or situation, such states are accepted as normal. Only when excessively intense and uncontrolled, as in the 10 percent of the patients who reported severe depression, or when accompanied by derangements of visceral function, as revealed by the 2 percent of the patients who had had nervous breakdowns, do these reactions become the basis for medical consultations before routine dental therapy is started.

Conclusion

An abbreviated form, such as the Dental Health Questionnaire, may identify certain high-risk patients; however, it relies heavily on the dialogue or oral communication to elicit

vital information, without the benefit of providing a systematic or comprehensive format. Such a form in the hands of the experienced clinician could reflect the patient's physical and emotional status, but this is believed to be the exception.

The Patient Evaluation form:

- appears to reflect the dental patient's true physical and emotional status more comprehensively and therefore more accurately;
- provides a more comprehensive medical history;
- addresses more directly the problems of an ever-increasing number of female patients in military dental facilities;
- provides discreet questioning concerning pertinent familial and social histories;
- provides more reliable identification of certain patients with infectious disease;
- better prepares the clinician to anticipate complications involving the respiratory and cardiovascular system; and
- helps the clinician recognize those patients who require altered treatment protocols to maintain their psychological equilibrium or to enlist their cooperation.

An adequate health questionnaire is significant in the evaluation of medically and pharmacologically compromised, high-risk dental patients. Because the Patient Evaluation form appears to reflect the dental patient's physical and emotional status more accurately than the Dental Health Questionnaire, a revision of the questionnaire is proposed.*

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*A revision of the Dental Health Questionnaire, NAVMED 6600/3 (Rev. 12-72) is currently underway using information provided by this study.

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In Memoriam

RADM *Edward C. Kenney,* MC, USN (Ret.), Surgeon General of the Navy from 1961-1965, died 22 Feb 1983.

Born 19 Feb 1904 in Corning, OH, Dr. Kenney graduated from Denison University in 1926 and from the University of Cincinnati College of Medicine in 1929. Shortly thereafter he was appointed assistant surgeon and served at several naval medical facilities ashore and afloat and with the Marines.

During World War II he served aboard USS *Henderson* and then as senior medical officer of the cruiser USS *Boise.* In the Battle of Cape Esperance, Guadalcanal, 11-12 Oct 1942, *Boise* was heavily damaged and suffered many casualties. Dr. Kenney's "extraordinary heroism" under fire while treating the wounded earned him the Navy Cross.

Returning to California, Dr. Kenney participated in penicillin research at the Long Beach Naval Hospital, the first hospital on the west coast to receive the new drug.

In July 1944 he returned to the Pacific and participated in the landings on Guam, Leyte, and Lingayen Gulf. A year later he became executive officer of Fleet Hospital No. 114 at Samar, the Philippines.

Dr. Kenney later served as chief of medicine at the Naval Hospitals in Camp Lejeune and Philadelphia, and as commanding officer of the Jacksonville Naval Hospital and National Naval Medical Center, Bethesda.



RADM Kenney

In March 1958 RADM Kenney became Assistant Chief for Personnel and Professional Operations at BUMED, and a year later Deputy and Assistant Chief of the Bureau.

He was appointed Surgeon General 31 Jan 1961. During his tenure he promoted medical research and submarine, aviation, and preventive medicine. He retired from active duty in 1965.

LT W. Kenneth Patton, MSC, USN (Ret.), died 22 Dec 1982 in Belmawr, NJ, after a long illness.

Born 2 Feb 1912 in Glenwood, IA, LT Patton began his long, distinguished military career in the Iowa National Guard before enlisting in the Navy in 1931. As a general duty corpsman, he was stationed at the Naval Hospital, Philadelphia, aboard the cruiser USS *Houston* from 1937-1939, and then at the EENT clinic at Coco Solo, Canal Zone.

During World War II he served in the pharmacy at the Navy Department Dispensary in Washington, DC, aboard the transport USS *Mc Cawley,* and as personnel officer with the Medical Department of the First Marine Aircraft Wing. Assigned to BUMED in 1943, Patton became Editor of the *Hospital Corps Quarterly.* He was promoted to chief pharmacist in 1944 and that same year was commissioned an ensign in the Hospital Corps.

Patton's post-war assignments included duty at the Philadelphia Naval Hospital and temporary duty helping to reactivate the hospital ship USS *Repose* in 1950. He then served with the First Medical Battalion, First Marine Division in Korea and was then stationed at the Naval Hospital, Bainbridge, MD. He became Chief of the Information and Education Division at the Philadelphia Naval Hospital and retired from active duty in 1957.

LT Patton's lifelong fascination with naval history was put to good use following his retirement. He returned to BUMED as Historian and became caretaker and protector of the Bureau's historic manuscript and artifact collection. He also augmented BUMED's historical archives, writing several voluminous manuscripts on the history of naval hospitals. He retired for a second time in 1974.

Ken Patton was a frequent contributor to *U.S. Navy Medicine,* a friend and colleague. He loved the Navy and had a rare feeling for its history.

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